

SINGLE PIECE COVER FOR LIGHT GUIDE

FIELD OF THE INVENTION

This invention relates to the fixing structure of a light guide. More particularly, the invention is directed
5 to increase the integral strength and crashing resistance ability by fixing several light guides and brightness enhancement films with a single-piece cover.

BACKGROUND OF THE INVENTION

Multi-faceted color display panels have been
10 popular on the market for the past few years. The backlight source for these multi-faceted color display panels is white LED and several light guides and brightness enhancement films are used to increase luminance. However, the integral structural strength
15 seems insufficient for practical application as a cover along with respective light guide and brightness enhancement film is fixed for each dimension of a display panel. Then, all covers are connected and fastened with a hook or tape. No matter what method is
20 adopted for fixing, two individual covers are forced to be as one. Certain external factors might result in coming off or separation of two covers, which not only increases the defect rate of products, but also wastes the manufacturing cost.

25 Accordingly, how to design a stationary structure

of a light guide that may increase the integral strength efficiently and promote the crashing resistance capability has become one of the major issues concerned.

5 **SUMMARY OF THE INVENTION**

The main purpose of this invention is to improve the aforementioned defects of deficient integral strength and crashing resistance ability by providing a single-piece cover to fix several light guides and
10 brightness enhancement films.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig.1 shows a 3-dimensional breakdown illustration of this invention.

Fig.2 shows another 3-dimensional breakdown
15 illustration of this invention.

Fig.3 shows a 3-dimensional local assembly diagram of this invention.

DETAILED DESCRIPTION OF THE REFERRED EMBODIMENT

20 To facilitate committee members for a better understanding of this invention, a description of the preferred embodiment along with drawings is made in detail as follows:

First, refer to Fig. 1 and 2 for 3-dimensional
25 breakdown illustration of this invention. This invention

relating to a single-piece cover for a light guide includes:

A single-piece cover 10 made from an integrated (one-shaped) process providing a first space 11 and a
5 second space 12 with several embedded slots 110 and 120 built in the inner edge;

at least a set of light guides 20 and 30 whose outer edge built with inlays 21 and 31 corresponding to embedded slots 110 and 120;

10 a polarizer 40 installed between the light guide 20 and the second space 12 of the single-piece cover 10 to project polarized light source;

at least a set of brightness enhancement films 50 and 60 installed on a side of light guides 20 and 30
15 respectively;

and at least a set of buffers 70 and 80 installed on a side of the brightness enhancement films 50 and 60.

Refer to Fig.3 of the 3-dimensional local assembly diagram for this invention;

20 First, place the polarizer 40 unto the second space 12 and then put two light guides 20 and 30 unto the first space 11 and the second space 12 for the inlays 21 and 31 on the outer edge of light guides 20 and 30 to engage with embedded slots 110 and 120 built in the inner edge
25 of the first space 11 and the second space 12 so that two

light guides 20 and 30 may be fixed unto the single-piece cover 10.

In addition, place at least the set of brightness enhancement films 50 and 60 on a side of light guides
5 20 and 30 in order and then put buffers 70 and 80 unto the other side of brightness enhancement films 50 and 60 to prevent the brightness enhancement films 50 and 60 from falling.

The above components form this invention
10 accordingly. The primary feature of this invention puts emphasis on fixing at least the set of light guides 20 and 30 and the brightness enhancement films 50 and 60 by merely an one-shaped single-piece cover 10 instead of using at least two covers to fix respective light guide
15 and brightness enhancement film via hooks or tape used in the typical approach. As a result, the single-piece cover 10 won't come off or separate due to certain external factors, which not only decreases the defect rate of products efficiently, but also reduces
20 unnecessary manufacturing cost.

One thing deserves to be mentioned is that the technology of this invention to be claimed focuses on the increase in integral strength and crashing resistance ability by use of only the single-piece cover 10 formed
25 by two light guides 20 and 30. Therefore, two left-right,

up-down or front-rear directed light guides 20 and 30
can be selected in accordance with actual requirements
to put the single-piece cover 10 together.